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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,876	08/29/2001	Kazushi Higashi	2001_1194A	5635
513	7590	04/28/2004	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			GRAYBILL, DAVID E	
			ART UNIT	PAPER NUMBER
			2827	

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/940,876	Applicant(s) HIGASHI ET AL.	
	Examiner David E Graybill	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 06 February 2004.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 11-36 is/are pending in the application.
 4a) Of the above claim(s) 24-35 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 11-23 and 36 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____
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The amendment filed 6-17-3 contains instructions to amend the "the following new title"; however, no new title has been submitted.

Applicant's election with traverse of Group I, claims 11-23 in the paper filed on 10-29-3 is acknowledged. The traversal is on the ground that the inventions of Groups I and II have been previously examined. This is not found persuasive because a restriction requirement is not improper between inventions previously examined on the merits. Indeed, 37 CFR § 1.142(a) explicitly states that a restriction may be made at any time before final action.

§ 1.142 Requirement for restriction.

(a) If two or more independent and distinct inventions are claimed in a single application, the examiner in an Office action will require the applicant in the reply to that action to elect an invention to which the claims will be restricted, this official action being called a requirement for restriction (also known as a requirement for division). Such requirement will normally be made before any action on the merits; however, it may be made at any time before final action.

The traversal additionally appears to be on the ground that there must be a serious burden if restriction is not required, and the previous examination of both Groups I and II is evidence that there is no serious burden. This is not found persuasive because, as properly set forth in the restriction requirement, there is a serious burden if restriction of Groups I and II is not required; although, in order to continue to afford applicant the benefit of compact prosecution, restriction was not initially required and a serious burden was incurred in the initial examination of both groups.

However, the serious burden remains, and the right to require restriction at any time before final action is herein exercised.

For at least these reasons, and because the reasons for insisting on restriction as stated in MPEP 808 have been clearly met, the requirement is still deemed proper and is therefore made FINAL.

In view of applicant's amendment and remarks filed on 10-29-3, the outstanding restriction requirement is restated infra.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 11-23 and 36 drawn to a process, classified in class 438, subclass 106.
- II. Claims 24-35 drawn to a product, classified in class 361, subclass 761.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make another and

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materially different product such as a product wherein the second board is not electrically connected to the component. To further clarify, because the transitional claim language "comprising" is inclusive of additional process steps other than the particular recited steps, the scope of the process claims encompasses a step of electrically disconnecting the second board and the component to make a final product wherein the second board is not electrically connected to the component.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

In the rejections *infra*, reference labels are generally recited only for the first recitation of identical elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 23 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Drye (4722914).

At column 5, lines 37-49; column 6, lines 34-52; column 7, lines 39-41; column 8, lines 5-23; column 9, lines 17-24; column 11, lines 13-18, 51 and 63-66; column 12, lines 1-16 and 39-47; column 12, line 67 to column 13, line 11; and column 13, lines 34-37, Drye teaches a method for assembling an integral electronic device, comprising: in an opening 41h that extends completely through a thickness of a first board 41, holding an electronic component 42; and electrically connecting 56 a second board 53 to said electronic component, thereby providing an integral electronic device including said first board, said electronic component and said second board; and, in another opening 41h that extends completely through the thickness of said first board, holding another electronic component 42; and electrically connecting said second board to said another electronic component while said another electronic component is held in said another opening, wherein said opening and said another opening are parallel to one another; wherein

electrically connecting a second board to said electronic component comprises electrically connecting a second board to said electronic component while said electronic component is held in said opening.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drye as applied to claim 11, and further in combination with Brofman (6220499).

As cited, Drye teaches wherein electrically connecting a second board to said electronic component comprises electrically connecting said second board to said electronic component via a metallic bump 56; wherein electrically connecting said second board to said electronic component via a metallic bump comprises a metallic bump that is on said second board and then connecting said metallic bump to said electronic component.

However, Drye does not appear to explicitly teach flattening the bump.

Nevertheless, at column 3, line 55 to column 4, line 36, Brofman teaches flattening a bump 20. Moreover, it would have been obvious to flatten the bump of Drye because Brofman teaches that it is desirable.

Claims 14, 17, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drye as applied to claim 11, and further in combination with Inoue (6333522).

As cited Drye teaches wherein holding an electronic component in an opening that extends completely through a thickness of a first board comprises holding an element 42 in said opening, with said opening being defined by a side wall that is capable of shielding light emitted from said light-emitting element; wherein holding said element in said opening comprises holding said element in said opening via a curing material 43f; wherein holding said electronic component in said opening comprises holding said electronic component in said opening via material 43f that surrounds

said electronic component except for upper and lower surfaces of said electronic component.

However, Drye does not appear to explicitly teach a light-emitting element.

Nonetheless, as cited, Drye teaches that the element is an integrated circuit element, and, at column 12, lines 20-61, Inoue teaches an integrated circuit light-emitting element 1. Furthermore, it would have been obvious to use the integrated circuit light-emitting element of Inoue as the integrated circuit element of Dryer because it would provide the integrated circuit element of Dryer, and use of a known element based on its suitability for its intended use has been held to be prima facie obvious. See MPEP 2144.07.

Although Drye does not appear to explicitly teach that the side wall is capable of shielding light emitted from said light-emitting element, this limitation is merely a statement of intended use which does not result in a manipulative difference as compared to the process of Drye. Furthermore, because the process of Drye is inherently capable of being used for the same intended use, the statement of intended use does not patentably distinguish the claimed process from the process of Drye. Indeed, in the specification, at page 9, lines 3-8, applicant teaches that the mere presence of the side wall renders the side wall capable of shielding light emitted from the element.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drye as applied to claim 11, and further in combination with Yoshida (6445001).

Drye does not appear to explicitly teach a board of any one of glass, ceramic and an organic resin.

Regardless, as cited, Drye teaches that the board is silicon and "other materials," and at column 2, lines 4-9, Yoshida teaches that silicon, glass, ceramic, and resin boards are equivalents. Therefore, it would have been obvious to substitute the glass, ceramic, and resin board of Yoshida for the silicon board of Drye.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drye and Yoshida as applied to claim 18, and further in combination with Inoue (6333522).

Inoue is applied for the same reason it is applied to claim 17.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drye and Inoue as applied to claim 14, and further in combination with Yoshida (6445001).

Yoshida is applied for the same reason it is applied to claim 18.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drye as applied to claim 21, and further in combination with Hirano (4788584).

As cited, Drye teaches wherein electrically connecting a second board to said electronic component comprises electrically connecting said second board to said upper surface of said electronic component, said method further comprising: connecting a third board 51 to said lower surface of said electronic component.

However, Drye does not appear to explicitly teach electrically connecting the third board.

Still, as cited, Drye teaches that the third board is a heat sink, and at column 3, lines 6-12, DiCaprio teaches electrically connecting a heat sink 28 to a lower surface 13 of an electronic component 12. Moreover, it would have been obvious to electrically connect the heat sink and component of Drye because it would provide a ground contact.

Applicant's remarks filed 2-6-4 have been fully considered and rendered moot by the rejection supra.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a

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first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 703-306-3329.

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947, or after about 02/05/04, (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (703) 872-9306.



David E. Graybill
Primary Examiner
Art Unit 2827

D.G.
23-Apr-04